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TULARAEMIA

Observations on a Strain of Low Initial Virulence from Rabbit Ticks¹

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In the fall of 1934 a strain of *Bacterium tularense* of very low initial virulence for guinea pigs was isolated by the writers from rabbit ticks, *Haemaphysalis leporis-palustris*, from British Columbia. The ticks concerned were part of a shipment of 900 received on September 4 from Prof. G. J. Spencer, acting in charge of the Dominion Entomological Laboratory at Kamloops. They were from six snowshoe rabbits shot near Rayleigh on August 26 and 28.

On September 6 these ticks were macerated in lots of 100, and the material from each lot was injected intraperitoneally into 2 guinea pigs. Eighteen test animals were thus used. After an incubation period of 2 to 6 days, 8 of the guinea pigs developed low fever of short duration. Three of these also showed a coincident slight scrotal swelling. On the 6th day of the test a lineal series of transfers was started from one of the guinea pigs (64533) of the last group. This animal had shown a temperature of 40° C. on both the 4th and 5th days, with a slight scrotal involvement.

This series of transfers was started on the chance that the febrile and scrotal reactions noted might be due to a mild spotted fever infection and in the hope that, if this were the case, a strain could be established. The series was continued through seven passages. It soon became apparent (in second-transfer animals) that, even if spotted fever virus were present, there was also some contaminating agent or agents. Although the lesions in the later transfers suggested tularaemia, and a pure culture of *Bacterium tularense* was eventually isolated, the possibility of tularaemia infection was not seriously considered until the fifth passage. The prior transfers, therefore, were made according to methods used in the isolation and maintenance of strains of spotted fever virus. Brief records of the test animals will be given below.

¹ From the Rocky Mountain Laboratory of the U. S. Public Health Service at Hamilton, Mont.

The first-transfer guinea pigs (64921 and 64922) each received intraperitoneally 2 cc of heart blood taken from the source animal. The latter was afebrile on this day and remained so until October 4, in spite of the fact that it was injected with 1 cc of proved potent spotted fever virus on September 21. It was finally discarded in apparent good health with the other 17 original, tick-inoculated animals, on October 17, the forty-first day after the start of the test. The significance of these results so far as spotted fever is concerned will be discussed elsewhere.

Of the 2 first-transfer guinea pigs, 1 remained afebrile until temperature-taking was discontinued on the fourteenth day. It was discarded in an apparently healthy condition 34 days after receiving the inoculum. The other guinea pig, though afebrile, was sacrificed on the sixth day following 2 days of slight temperature elevation (39.6°C.) and second-transfer guinea pigs, 65042 and 65043, each received 3 cc of a mixture of testicle and tunica washings and triturated spleen. The tissues of the donor animal appeared normal.

Of the second-transfer guinea pigs, 65042 died afebrile on the tenth day. The spleen was slightly enlarged and there was an excess of fluid in the peritoneal cavity. The other, 65043, showed low fever on the ninth and tenth days (40°C.). It was killed on the latter day and 2 third-transfer animals each received the same kind and amount of material as used for the second transfer. The spleen was enlarged ($\times 2.5$) and there were a few relatively large, whitish, superficial nodules. The possibility that these lesions might have been due to tularaemia was suggested by the source of the original inoculum, but was not seriously considered at that time.

Both third-transfer guinea pigs were febrile. Guinea pig 65293 was killed and necropsied on the ninth day. The spleen was enlarged ($\times 2.5$) and showed small grayish necrotic foci in cross section, not evident on the surface. The other (65292) was killed and necropsied on the seventh day, and showed a spleen with slight exudate and enlarged three times. Again there were scattered, large, white nodules on the surface.

Two fourth-transfer animals (65614 and 65615) were injected, the former with ground spleen tissue, the latter with 3 cc of testicular and tunica washings. Of these, 65615 was killed on the fifth day (fourth of fever). The spleen was 2.5 times enlarged and studded with many, rather large foci. Though the appearance was *not* characteristic of tularaemia, the possibility that this infection was involved was entertained for the first time; transfers, however, were valueless. The other (65614) died the ninth day after a course of high fever; the spleen was much enlarged ($\times 4.0$) and showed exudate and focal necrosis.

The fifth-transfer guinea pigs received spleen tissue of this animal, 65740 subcutaneously and 65741 intraperitoneally. The former, 65740, died in 5 days; the spleen was twice enlarged, and there were numerous necrotic foci. There was induration at the site of inoculation, and an injection and slight enlargement of the inguinal glands. This was the first gross pathology which was typical of tularaemia, and the transfer technique was changed accordingly. Guinea pig 65984 received spleen tissue subcutaneously and 65983 was dermally inoculated with the same. The other fifth-transfer guinea pig died on the third day and also showed characteristic tularaemia lesions, but there was also a marked peritonitis.

Spleen transfer dermally to a guinea pig was fatal in 5 days and this line was discontinued. The picture was typical of tularaemia. The spleen and liver were studded with necrotic foci, and caseation of the inguinal lymph nodes was present for the first time.

Sixth-passage guinea pigs 65983 and 65984 (from 65740) both died, also on the fifth day. Their gross lesions were again typical. The heart blood of the former showed only a contaminating organism when cultured on *tularensis* medium, but that of the latter gave typical growth, except that the individual colonies all showed dark centers which were quite pronounced under low power magnification. A suspension of this culture was agglutinated by a known anti-*tularensis* serum.

The above culture was used 4 days later to inoculate guinea pig 66179, which died typically in 5 days. A culture isolated from the heart blood was characteristic of *Bact. tularensis*, both culturally and serologically. Several additional transfer passages resulted in the death of all test animals, each of which showed gross lesions typical of acute tularaemia.

The conditions incident to the isolation of this strain of *Bact. tularensis* are of interest for two reasons, viz, (1) its extreme initial mildness as shown by the failure of the original and one of the first-passage guinea pigs (the other was killed afebrile for passage material) to show any evidence of illness 41 and 34 days, respectively, during which they were under observation, and (2) its rapid acquisition of increasing virulence by guinea pig passage with progressive change in observed lesions. No other instance of similar increase in virulence of *Bact. tularensis* during experimental or routine passage has been encountered at this laboratory in the course of several years' experience.

In view of the number of passages involved before the gross lesions became definitely suggestive of tularaemia, it is quite probable that the presence of *Bact. tularensis* would never have been determined but for the hope that continued passages would build up the virulence of a suspected low-grade strain of spotted fever virus.

EXPERIENCE WITH CHOLERA BACTERIOPHAGE IN INDIA

The following statements regarding the experience with the use of cholera bacteriophage in India are taken from the Annual Report of the Director of the Eastern Bureau of the Health Organization of the League of Nations at Singapore, for 1934:

*Madras.*¹—Experiments to determine the value of bacteriophage as a prophylactic and curative agent against cholera were carried out in certain districts of Madras.

The conclusions reached were that—

(1) The prophylactic administration of bacteriophage did not reduce the attack rate;

(2) The prophylactic administration did appear to lessen the mortality rate; and

(3) Bacteriophage was not more useful than prodiarrhea mixture in the treatment of cholera.

Assam.—Morrison, Rice, and Pal Choudbury² have submitted to a statistical examination the results obtained over a period of time by using bacteriophage for the prophylaxis and treatment of cholera. They conclude that "the results establish a sufficient probability in favor of a significant effect of the administration of bacteriophage to form a basis of practical policy in the treatment and prevention of cholera in villages."

Both in Madras and Assam it appeared that bacteriophage reduced the infecting property of vibrios, from which it would seem that its use should be helpful in reducing the carrier rate.

The epidemic in Cachar³ in 1933 afforded further opportunity to try the curative effect of bacteriophage, and the statement is made that "as far as figures from reliable data can show, there is no doubt that bacteriophage is an efficacious treatment for cholera."

In regard to prevention, the distribution of cholera-dysentery bacteriophage to villages for the treatment of all diarrheas, dysentery, and suspected cholera has been continued in Nowgong and Habiganj. In the former area there has been no epidemic outbreak for 4½ years, or in the latter for 3 successive cholera seasons. Habiganj also was the only part of the delta of the Barak River which missed epidemic prevalence during the outbreak which occurred during October and December 1933.

Linton⁴ and others have continued their studies on the antigenic structure of *Vibrio cholerae*. They classify cholera and choleralike vibrios on the basis of the protein and carbohydrate analysis into six groups. The majority of the strains found in clinical cholera are

¹Annual Report of the Department of Public Health, Madras, 1933.

²Indian Journal of Medical Research, vol. 21, no. 4, p. 789.

³King Edward VII Memorial Pasteur Institute, Shillong, 17th Annual Report.

⁴Indian Journal of Medical Research, vol. 21, no. 4, p. 759.

found in group I, while group III comprises the nonagglutinating water vibrios. The El Tor strains analyzed fall into a fourth group, being related to the majority of vibrios found in clinical cholera through the possession of an identical carbohydrate, and to the water vibrios through the protein. This group contains other aberrant strains.

DEATHS DURING WEEK ENDED JUNE 22, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended June 22, 1935	Correspond- ing week, 1934
Data from 86 large cities of the United States:		
Total deaths.....	7,831	7,363
Deaths per 1,000 population, annual basis.....	10.9	10.3
Deaths under 1 year of age.....	559	521
Deaths under 1 year of age per 1,000 estimated live births.....	51	50
Deaths per 1,000 population, annual basis, first 25 weeks of year.....	12.3	12.1
Data from industrial insurance companies:		
Policies in force.....	67,863,479	67,776,458
Number of death claims.....	12,297	12,348
Death claims per 1,000 policies in force, annual rate.....	9.4	9.5
Death claims per 1,000 policies, first 25 weeks of year, annual rate.....	10.5	10.7

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended June 29, 1935, and June 30, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 29, 1935, and June 30, 1934

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
New England States:								
Maine.....		1	1		183	15	0	0
New Hampshire.....		0			2	113	0	0
Vermont.....	1	3			35	24	0	0
Massachusetts.....	10	10			318	596	0	2
Rhode Island.....	1	0			222	20	0	0
Connecticut.....	19	3			301	105	0	1
Middle Atlantic States:								
New York.....	39	16		13	2,063	505	15	4
New Jersey.....	15	12	3	6	1,020	366	1	1
Pennsylvania.....	31	35			988	1,015	11	1
East North Central States:								
Ohio.....	30	15	22	14	1,278	971	8	0
Indiana.....	11	7	9	12	54	140	1	0
Illinois.....	44	37	11	14	747	1,131	11	7
Michigan.....	6	7	1		1,423	214	3	2
Wisconsin.....	3	9	30	11	1,178	1,320	2	3
West North Central States:								
Minnesota.....	1	13	1		63	52	1	0
Iowa.....	4	8			41	94	1	1
Missouri.....	16	31	35	7	104	87	2	4
North Dakota.....	1	1	11		11	53	1	0
South Dakota.....		1			11	47	0	0
Nebraska.....		2			63	21	0	0
Kansas.....	5	25	9	1	189	135	0	0
South Atlantic States:								
Delaware.....	1				9	26	0	0
Maryland ^{1,2}	4	3	2	1	61	228		0
District of Columbia ³	9	4	1	1	9	18	4	1
Virginia ⁴	6	10			150	500	4	0
West Virginia.....	11	11	14		105	100	2	0
North Carolina ^{2,4}	9	4		5	31	332	4	0
South Carolina.....	3	5	59	70	16	66	1	0
Georgia ⁴	11	5				26	0	0
Florida ⁴	9	2		2	8	82	0	0

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended June 29, 1935, and June 30, 1934—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
East South Central States:								
Kentucky.....	4	3	2	1	25	211	5	0
Tennessee.....	9	2	8		14	94	2	1
Alabama.....	13	17	18	10	49	127	1	0
Mississippi.....	9	8					1	0
West South Central States:								
Arkansas.....	4		6	2	8	8	0	1
Louisiana.....	9	15	5	3	5	46	2	1
Oklahoma.....	9	1	19	21	8	21	0	0
Texas.....	26	49	24	33	50	147	0	0
Mountain States:								
Montana.....	4	2	2	2	85	4	0	1
Idaho.....			1		4	3	1	0
Wyoming.....		1			11	157	0	2
Colorado.....	9	11			106	334	0	0
New Mexico.....				2	3	24	0	0
Arizona.....				2		11	1	0
Utah.....				4	6	3	1	0
Pacific States:								
Washington.....					239	124	2	3
Oregon.....		0	16	18	84	16	1	0
California.....	34	31	26	17	665	515	5	0
Total.....	490	420	336	262	12,045	10,247	94	36
First 26 weeks of year.....	15,531	17,791	102,317	46,600	668,253	644,786	3,630	1,378

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
New England States:								
Maine.....	0	0	10	17	0	0	5	1
New Hampshire.....	1	0	3	5	0	0	0	0
Vermont.....	0	0	4	6	0	0	0	0
Massachusetts.....	3	1	162	119	0	0	2	0
Rhode Island.....	0	0	10	6	0	0	2	0
Connecticut.....	1	1	50	12	0	0	1	0
Middle Atlantic States:								
New York.....	8	3	418	294	0	0	11	11
New Jersey.....	3	3	75	61	0	0	0	3
Pennsylvania.....	3	0	241	253	0	0	10	26
East North Central States:								
Ohio.....	1	1	204	282	0	0	16	19
Indiana.....	0	0	41	41	2	1	5	5
Illinois.....	2	5	450	209	0	1	22	36
Michigan.....	1	0	136	196	0	0	6	4
Wisconsin.....	1	1	230	258	6	6	0	3
West North Central States:								
Minnesota.....	0	1	98	44	3	0	30	4
Iowa.....	0	0	31	24	15	1	0	2
Missouri.....	0	0	14	25	0	4	16	23
North Dakota.....	0	0	19	4	0	0	3	0
South Dakota.....	0	0	3	1	14	0	0	1
Nebraska.....	0	0	8	10	23	1	2	5
Kansas.....	0	2	23	15	19	0	7	6
South Atlantic States:								
Delaware.....	0	0	3	2	0	0	1	1
Maryland.....	0	1	31	22	0	0	4	10
District of Columbia.....	0	0	7	5	0	0	3	0
Virginia.....	24	1	15	10	0	0	18	23
West Virginia.....	0	1	36	28	0	0	3	12
North Carolina.....	63	0	14	16	0	1	43	14
South Carolina.....	2	0	2	1	0	0	47	12
Georgia.....	1	0	6	4	0	0	34	36
Florida.....	0	1	5	1	0	0	9	6

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 29, 1935, and June 30, 1934—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934	Week ended June 29, 1935	Week ended June 30, 1934
East South Central States:								
Kentucky.....	1	0	22	11	1	0	18	21
Tennessee.....	1	1	12	4	0	0	27	31
Alabama.....	5	0	11	4	1	0	30	17
Mississippi.....	0	2	10	4	0	0	16	14
West South Central States:								
Arkansas.....	0	0	3	-----	0	0	17	14
Louisiana.....	4	0	6	9	6	1	23	30
Oklahoma.....	0	0	8	7	0	1	9	11
Texas.....	0	6	21	28	2	12	35	68
Mountain States:								
Montana.....	1	1	10	7	2	0	2	1
Idaho.....	0	2	2	1	0	0	1	0
Wyoming.....	0	0	7	1	10	1	0	0
Colorado.....	0	0	44	13	1	0	2	1
New Mexico.....	0	0	3	6	0	0	6	7
Arizona.....	0	2	7	9	0	0	3	3
Utah.....	0	0	50	6	0	0	0	1
Pacific States:								
Washington.....	0	1	30	19	35	6	3	1
Oregon.....	1	4	20	15	10	1	1	8
California.....	33	297	128	113	2	0	8	18
Total.....	100	338	2,743	2,228	152	37	490	495
First 26 weeks of year.....	1,025	2,090	171,478	140,447	4,852	3,519	4,583	5,205

¹ New York City only.

² Rocky Mountain spotted fever, week ended June 29, 1935, 29 cases as follows: Maryland, 1; District of Columbia, 1; Virginia, 2; North Carolina, 1; Montana, 12; Wyoming, 11; Washington, 1.

³ Week ended earlier than Saturday.

⁴ Typhus fever, week ended June 29, 1935, 25 cases as follows: North Carolina, 1; Georgia, 7; Florida, 1; Alabama, 10; Texas, 6.

⁵ Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Menin- gococ- cus menin- gitis	Diph- theria	Influenza	Malaria	Measles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>May 1935</i>										
Mississippi.....	1	19	1,293	6,359	500	494	2	17	2	22
Montana.....	5	10	235	-----	1,861	-----	0	41	34	6
New York.....	94	143	-----	3	13,127	-----	14	4,748	0	25
South Dakota.....	2	6	17	-----	168	-----	0	82	43	0
Virginia.....	43	55	260	7	2,293	11	4	95	0	22

May 1935

Cases		Cases		Cases		Cases	
Anthrax:		Mumps:		Tetanus:		Cases	
New York.....	1	Mississippi.....	940	New York.....	3		
Chicken pox:		Montana.....	147	Trachoma:			
Mississippi.....	331	South Dakota.....	125	Mississippi.....	3		
Montana.....	127	Virginia.....	385	Montana.....	4		
New York.....	3, 153	Ophthalmia neonatorum:		Trichinosis:			
South Dakota.....	39	New York.....	3	New York.....	60		
Virginia.....	276	Paratyphoid fever:		South Dakota.....	1		
Dengue:		New York.....	5	Tularaemia:			
Mississippi.....	84	Virginia.....	2	Montana.....	3		
Dysentery:		Puerperal septicemia:		Virginia.....	2		
Mississippi (amoebic).....	90	Mississippi.....	41	Typhus fever:			
Mississippi (bacillary).....	1, 770	Rabies in animals:		New York.....	2		
New York (amoebic).....	6	Mississippi.....	6	Undulant fever:			
New York (bacillary).....	17	New York.....	7	Montana.....	1		
Virginia (bacillary, and diarrhea).....	70	Rocky Mountain spotted fever:		New York.....	28		
Epidemic encephalitis:		Montana.....	35	Virginia.....	2		
New York.....	4	Virginia.....	4	Vincent's infection:			
Virginia.....	1	Scabies:		New York.....	79		
German measles:		Montana.....	3	Whooping cough:			
Montana.....	539	South Dakota.....	1	Mississippi.....	1, 175		
New York.....	20, 713	Septic sore throat:		Montana.....	300		
Hookworm disease:		Montana.....	16	New York.....	2, 596		
Mississippi.....	277	New York.....	95	South Dakota.....	28		
Impetigo contagiosa:		South Dakota.....	1	Virginia.....	356		
Montana.....	11	Virginia.....	9				

¹ Exclusive of New York City.

PLAGUE-INFECTED GROUND SQUIRREL IN LASSEN COUNTY, CALIF.

The director of public health of California has reported, under date of June 24, 1935, one plague-infected ground squirrel shot on a ranch in Lassen County, Calif., 4 miles east and 2 miles south of Adin.

WEEKLY REPORTS FROM CITIES

City reports for week ended June 22, 1935.

This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland.....	0	1	0	3	0	1	0	0	0	3	17
New Hampshire:											
Concord.....	0		0	1	0	3	0	0	0	0	11
Nashua.....	0			0		0	0		0	0	
Vermont:											
Burlington.....	1		0	0	0	2	0	0	1	0	11
Rutland.....	0		0		1	0	0	0	0	1	6
Massachusetts:											
Boston.....	3		0	41	23	37	0	14	0	10	206
Fall River.....	1		0	3	0	2	0	1	0	2	27
Springfield.....	0		0	28	1	14	0	1	0	1	30
Worcester.....	0		0	0	6	17	0	0	0	0	38
Rhode Island:											
Pawtucket.....	0		0	7	0	1	0	0	0	0	15
Providence.....	1	1	0	308	2	10	0	4	0	2	64
Connecticut:											
Bridgeport.....	0		0	17	0	3	0	0	0	1	34
Hartford.....	0		0	5	3	2	0	0	0	16	51
New Haven.....	0		0	30	1	0	0	0	0	1	43
New York:											
Buffalo.....	0		0	17	14	45	0	0	0	11	135
New York.....	20	11	3	1, 030	88	214	0	85	7	129	1, 424
Rochester.....	0		0	29	3	12	0	2	0	9	64
Syracuse.....	0		0	443	5	22	0	0	0	10	44
New Jersey:											
Camden.....	2		0	0	1	2	0	0	1	1	25
Newark.....	0	1	0	200	6	6	0	7	0	44	96
Trenton.....	0		0	0	2	6	0	3	0	0	36

City reports for week ended June 22, 1935—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Pennsylvania:											
Philadelphia.....	5	-----	2	70	25	59	0	23	3	60	435
Pittsburgh.....	4	1	0	114	14	41	0	8	1	18	154
Reading.....	1	-----	0	56	1	3	0	1	0	2	21
Scranton.....	0	-----	-----	19	-----	10	0	-----	0	2	-----
Ohio:											
Cincinnati.....	0	-----	1	5	11	10	0	10	0	0	145
Cleveland.....	9	8	1	274	13	14	0	17	0	30	166
Columbus.....	0	-----	0	54	4	9	0	6	0	3	73
Toledo.....	0	-----	0	67	6	3	0	3	0	9	80
Indiana:											
Anderson.....	0	-----	0	3	0	1	0	0	0	1	11
Fort Wayne.....	5	-----	0	0	3	1	0	1	0	0	29
Indianapolis.....	1	-----	1	11	11	7	0	2	0	5	100
South Bend.....	0	-----	0	0	0	4	0	0	0	0	15
Terre Haute.....	0	-----	0	0	0	1	0	0	0	0	16
Illinois:											
Alton.....	0	-----	-----	0	-----	0	0	-----	0	0	7
Chicago.....	18	5	2	449	25	365	0	33	3	76	633
Elgin.....	0	-----	0	0	0	5	0	0	0	4	5
Moline.....	0	-----	0	0	0	0	0	0	0	0	8
Springfield.....	0	-----	1	4	2	6	0	0	0	12	25
Michigan:											
Detroit.....	1	-----	2	263	18	39	0	24	2	115	246
Flint.....	1	-----	0	1	3	1	0	0	1	4	25
Grand Rapids.....	0	-----	0	78	3	11	0	1	0	12	46
Wisconsin:											
Kenosha.....	0	-----	0	9	0	12	0	0	0	2	5
Milwaukee.....	1	1	1	540	7	73	0	2	0	47	95
Racine.....	0	-----	0	104	0	21	0	1	1	11	15
Superior.....	0	-----	0	14	0	0	0	0	0	0	6
Minnesota:											
Duluth.....	0	-----	0	10	1	1	0	2	0	2	27
Minneapolis.....	1	-----	0	18	1	27	0	1	4	3	84
St. Paul.....	1	-----	0	18	6	18	0	2	1	2	54
Iowa:											
Cedar Rapids.....	0	-----	-----	3	-----	0	1	-----	0	1	-----
Davenport.....	0	-----	-----	0	-----	0	0	-----	0	0	-----
Des Moines.....	3	-----	-----	0	-----	2	0	-----	0	-----	30
Sioux City.....	0	-----	-----	1	-----	1	1	-----	0	5	-----
Waterloo.....	1	-----	-----	0	-----	2	0	-----	0	1	-----
Missouri:											
Kansas City.....	0	-----	0	9	7	5	0	9	0	0	93
St. Joseph.....	0	-----	0	0	3	0	0	0	0	0	45
St. Louis.....	8	-----	0	11	7	6	0	5	0	7	163
North Dakota:											
Fargo.....	0	-----	4	3	0	2	0	0	0	4	11
Grand Forks.....	0	-----	-----	1	-----	1	0	-----	0	0	-----
Minot.....	0	-----	-----	1	-----	0	0	-----	0	0	8
South Dakota:											
Aberdeen.....	0	-----	-----	2	-----	1	0	-----	0	0	-----
Nebraska:											
Omaha.....	0	-----	0	11	2	7	0	1	0	0	46
Kansas:											
Lawrence.....	0	-----	0	9	-----	1	0	-----	0	0	-----
Topeka.....	0	-----	0	30	1	0	0	0	0	22	12
Wichita.....	0	-----	0	3	0	1	0	1	0	4	23
Delaware:											
Wilmington.....	1	-----	0	1	3	3	0	1	0	0	22
Maryland:											
Baltimore.....	0	-----	4	12	18	28	0	13	1	22	219
Cumberland.....	0	-----	0	0	0	1	0	0	0	0	1
Frederick.....	0	-----	0	1	0	0	0	0	0	0	2
District of Colum- bia:											
Washington.....	6	1	0	12	7	7	0	12	0	3	149
Virginia:											
Lynchburg.....	1	-----	0	0	0	0	0	1	0	24	11
Norfolk.....	0	-----	0	3	2	1	0	1	0	0	40
Richmond.....	0	-----	0	10	1	1	0	6	0	4	48
Roanoke.....	0	-----	1	2	0	0	0	3	0	0	16
West Virginia:											
Charleston.....	1	-----	0	2	0	0	0	1	0	1	7
Wheeling.....	0	-----	0	18	3	1	0	0	0	2	15

City reports for week ended June 22, 1935—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths all causes
		Cases	Deaths								
North Carolina:											
Gastonia	0			0		0	0		0	0	3
Raleigh	0		0	0	1	0	0	0	0	0	9
Wilmington	0		0	0	0	0	0	0	0	8	14
Winston-Salem	0		0	0	1	0	0	0	0	4	8
South Carolina:											
Charleston	0		0	0	2	0	0	1	0	0	20
Columbia											
Florence	0			0		0	0		2	2	18
Greenville	0		0	0	2	0	0	0	0	1	13
Georgia:											
Atlanta	5	4	0	0	7	1	0	2	0	17	81
Brunswick	0		0	0	0	0	0	0	0	0	2
Savannah	0		0	2	1	0	0	1	0	2	32
Florida:											
Miami	2		0	1	1	0	0	2	0	0	19
Tampa	0		0	1	3	0	0	0	3	0	20
Kentucky:											
Ashland	0			21		1	0		0	0	
Covington	1		0	0	3	2	0		0	0	16
Lexington			0		2			1			16
Tennessee:											
Knoxville	0		0	1	1	0	0	2	0	0	34
Memphis	1		0	0	8	3	0	2	0	11	70
Nashville	3		0	0	5	0	0	1	0	15	68
Alabama:											
Birmingham	1		0	7	1	0	0	3	0	7	89
Mobile	0	1	0	2	3	0	0	0	2	0	24
Montgomery	0			0		1	0		0	0	
Arkansas:											
Fort Smith	0			0		0	0		2	0	
Little Rock	1		0	0	10	0	0	3	0	0	15
Louisiana:											
New Orleans	10		1	1	0	8	0	15	2	0	141
Shreveport	0		0	0	2	0	0	4	0	0	48
Texas:											
Dallas	1		0	0	3	3	1	3	0	5	66
Fort Worth	0		0	0	0	1	0	0	1	0	39
Galveston	0		0	0	4	0	0	0	0	0	20
Houston	3		0	2	8	1	0	3	1	0	86
San Antonio	2		0	0	2	1	0	3	0	0	40
Montana:											
Billings	0		0	4	0	0	0	1	0	1	5
Great Falls	0		0	4	0	1	0	0	0	4	5
Helena	0		0	1	0	0	0	0	0	2	5
Missoula	0		0	0	2	0	0	0	0	0	9
Idaho:											
Boise	0		0	1	1	0	0	0	0	0	9
Colorado:											
Colorado											
Springs	0		0	0	2	9	0	3	0	0	12
Denver	5		0	82	6	19	0	7	0	1	65
Pueblo	0		0	7	0	4	0	0	1	2	8
New Mexico:											
Albuquerque	0		0	2	0	0	0	6	0	0	9
Utah:											
Salt Lake City	0		0	3	1	34	0	2	1	53	21
Nevada:											
Reno	0		0	0	1	0	0	0	0	0	1
Washington:											
Seattle	0		0	187	5	9	0	3	1	4	78
Spokane	0	2	2	8	3	4	0	0	0	2	32
Tacoma	0		0	1	2	1	1	0	0	0	23
Oregon:											
Portland	1	1	0	26	0	27	0	1	1	0	62
Salem	0			1		0	0		0	0	
California:											
Los Angeles	15	12		82	8	32	2	19	0	17	335
Sacramento	1		0	64	2	20	0	1	1	1	39
San Francisco	0		0	123	7	11	0	12	0	26	175

City reports for week ended June 22, 1935—Continued

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
New York:				Virginia:			
New York.....	22	11	9	Lynchburg.....	1	1	1
Rochester.....	1	0	1	Norfolk.....	1	3	0
Pennsylvania:				North Carolina:			
Philadelphia.....	2	0	0	Raleigh.....	0	0	2
Pittsburgh.....	1	0	1	Georgia:			
Ohio:				Atlanta.....	1	0	0
Cincinnati.....	2	2	0	Tennessee:			
Cleveland.....	1	1	0	Knoxville.....	1	0	1
Columbus.....	1	1	0	Memphis.....	1	1	0
Illinois:				Alabama:			
Chicago.....	7	4	0	Birmingham.....	1	1	0
Michigan:				Arkansas:			
Detroit.....	3	0	1	Fort Smith.....	1	0	0
Missouri:				Louisiana:			
Kansas City.....	2	0	0	New Orleans.....	0	0	1
St. Joseph.....	1	1	0	California:			
St. Louis.....	3	0	0	Los Angeles.....	3	0	26
Maryland:							
Baltimore.....	6	3	0				
District of Columbia:							
Washington.....	11	1	0				

Epidemic encephalitis.—Cases: New York, 3; Detroit, 1; St. Paul, 2; Sacramento, 1.

Pellagra.—Cases: Providence, 1; Norfolk, 2; Charleston, S. C., 1; Savannah, 4; Miami, 1; Birmingham, 1; Montgomery, 2.

Rabies in man.—Chicago, 1 death.

Typhus fever.—Cases: Savannah, 1. Deaths: Savannah, 1; Fort Worth, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended June 15, 1935.—During the 2 weeks ended June 15, 1935, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis				1	1		1			3
Chicken pox		1	3	340	525	72	39	36	168	1,182
Diphtheria		7		32	12	7	2		1	61
Dysentery				6						6
Erysipelas				8	6	2		4	3	23
Influenza		10	14		7	10			28	67
Lethargic encephalitis					1					1
Measles		62	17	1,371	6,138	144	108	516	297	8,653
Mumps		8			471	246	36	16	48	820
Paratyphoid fever					2				1	3
Pneumonia		2			26		1		14	43
Pollomyelitis				3	2		1	2	1	9
Scarlet fever		34	5	261	378	27	9	14	69	797
Smallpox									1	1
Trachoma				1			13		1	15
Tuberculosis	7	49	28	155	95	37	34	1	25	431
Typhoid fever				49	12	1		3	4	69
Undulant fever		1			5					10
Whooping cough		3	4	121	329	64	62	57	122	763

CZECHOSLOVAKIA

Communicable diseases—April 1935.—During the month of April 1935 certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	2		Malaria	55	
Cerebrospinal meningitis	26	8	Paratyphoid fever	7	
Chicken pox	101		Pollomyelitis	1	
Diphtheria	1,794	131	Puerperal fever	38	11
Dysentery	47	2	Scarlet fever	1,483	19
Influenza	13,758	134	Trachoma	106	
Lethargic encephalitis	2	2	Typhoid fever	233	29

JAMAICA

Communicable diseases—4 weeks ended June 15, 1935.—During the 4 weeks ended June 15, 1935, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	18	41	Puerperal fever		7
Dysentery	4	5	Scarlet fever		1
Erysipelas		3	Tuberculosis	36	85
Leprosy	2	3	Typhoid fever	19	78

SALVADOR

Vital statistics—1934.—The following table shows the vital statistics for Salvador for 1934:

Population Dec. 31, 1934.....	1, 574, 495
Total births.....	63, 777
Birth rate per 1,000 population.....	40. 8
Total deaths.....	38, 766
Death rate per 1,000 population.....	26. 0
Total number of marriages.....	5, 659
Infant mortality per 1,000 live births.....	135. 0

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for June 23, 1935, pp. 875-890. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued July 26, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Brazil—Bahia State—Feira Santanna.—A report dated July 2, 1935, states that from the beginning of the year 16 deaths from plague have occurred at Feira Santanna, Bahia State, Brazil. Feira Santanna is about 80 miles from the city of Bahia and is connected by railroad with Cachoeira.

Ecuador—Guayaquil.—On April 10, 1935, 1 case of plague with 1 death was reported at Guayaquil, Ecuador.

Indo-China—Saigon-Cholon.—During the week ended June 22, 1935, 2 cases of plague were reported at Saigon-Cholon, Indo-China.

United States—California.—Report of plague-infected ground squirrels in California appears on page 917 of this issue of PUBLIC HEALTH REPORTS.

Smallpox

Japan—Nagoya.—During the week ended June 8, 1935, 1 case of smallpox was reported at Nagoya, Japan.

Typhus Fever

China—Canton.—During the week ended May 18, 1935, 1 case of typhus fever was reported at Canton, China.

Yellow Fever

Brazil.—During the week ended June 22, 1935, yellow fever was reported in Brazil, as follows: Goyaz State, 2 cases; Mato Grosso State, 2 cases; Minas Geraes State, 6 cases, 6 deaths; Sao Paulo State, 1 case, 1 death.